

Listing of the Claims:

1. (Currently amended) An unmanned ocean vehicle for operating either on or below the surface of a body of water, said vehicle comprising:
 - an enclosed hull having a payload bay;
 - a hybrid propulsion system having energy collectors and energy stores adapted for utilising at least (i) solar energy, (ii) wave or water current energy, and (iii) wind energy;
 - a plurality of sensors for detecting predetermined environmental parameters; and
 - a communications system for transmitting data from said sensors about selected environmental parameters to, and for receiving command signals from, one or more remote stations.
2. (Original) The unmanned ocean vehicle of claim 1 wherein the hull has an outer configuration having the general appearance of an aquatic animal.
3. (Original) The unmanned ocean vehicle of claim 1 wherein the enclosed hull is adapted to facilitate selective operation of the vehicle on or below the water surface.
4. (Previously presented) The unmanned ocean vehicle of claim 3 wherein the vessel includes ballast tanks for selective submerging and re-surfacing of the vehicle.
5. (Original) The unmanned ocean vehicle of claim 1 wherein the hybrid propulsion system includes a wing sail having an aerofoil configuration for propelling the vehicle using wind energy and having solar energy collectors disposed on the surface of the wing sail.
6. (Original) The unmanned ocean vehicle of claim 5 wherein the wing sail may be lowered to a declined position along the hull of the vehicle to reduce drag whilst continuing to collect solar energy.

7. (Previously presented) The unmanned ocean vehicle of claim 1 wherein the energy stores includes electrical storage cells coupled to solar energy collectors.

8. (Previously presented) The unmanned ocean vehicle of claim 7 wherein the hybrid propulsion system includes an electrical machine mechanically coupled to a fluid drive element, wherein the electrical machine is supplied from the storage cells to drive the fluid drive element in a motor mode.

9. (Previously presented) The unmanned ocean vehicle of claim 1 wherein the energy stores include rapid energy discharge devices to provide the vehicle with a short sprint capability.

10. (Previously presented) The unmanned ocean vehicle of claim 1 wherein the payload bay is internally powered in order to carry electronic equipment supporting the environmental sensors for oceanographic or military use.

11. (Previously presented) The unmanned ocean vehicle of claim 1 wherein the environmental sensors include sensors selected from the group including: anemometers, wind vanes, radars, radio frequency interceptors, optical band sensors, infrared band sensors, chemical/biological sensors, ocean current sensors, acoustic sensors, and bathymetric sensors.

12. (Previously presented) The unmanned ocean vehicle of claim 1 wherein the communications system comprises a global positioning system (GPS) receiver, a LFB/SWB/marine band transceiver, a wide band transceiver, and a satellite transceiver, together with suitable antenna arrays.

13. (Original) The unmanned ocean vehicle of claim 12 wherein the antenna arrays include deployable antennae arrays, suited to towed operation when receiving signals ranging from extremely low frequency (ELF) band to super high frequency (SHF) band, capable of transmission and reception in these bands

14. (Previously presented) The unmanned ocean vehicle of any one of claims 1 to 4 wherein the vehicle is able to dive under the surface for prolonged periods using stored energy to avoid ships, storms or for stealth operations.

15. (Previously presented) The unmanned ocean vehicle of any one of claims 1 to 4 wherein the hybrid propulsion system further includes a fuel cell for emergency use, such as emptying ballast tanks, to re-surface after a prolonged period of submerged operation.

16. (Previously presented) The unmanned ocean vehicle of claim 1 wherein the hybrid energy propulsion system further utilises, in addition to wind energy, wave or water current energy, and solar energy, only renewable energy sources, including: temperature differential; and sea water activated batteries or fuel cells.

17. (Previously presented) The unmanned ocean vehicle of claim 7 wherein the hybrid propulsion system includes an electrical machine coupled to a fluid drive element, wherein the electrical machine is driven by the drive element through wave action, water currents, or during regenerative sailing to charge the storage cells in a generator mode.

18. (Previously presented) The unmanned ocean vehicle of claim 9 wherein the rapid energy discharge devices comprise electrical capacitors.

19. (Previously presented) The unmanned ocean vehicle of claim 9 wherein the rapid energy discharge devices comprise fluid accumulators.

20. (Previously presented) The unmanned ocean vehicle of claim 1 wherein the payload bay carries life-saving or fire-fighting equipment for search and rescue operations.

21. (Currently amended) The unmanned ocean vehicle of claim 12 wherein the hybrid propulsion system includes a wing sail having an aerofoil configuration for propelling the vehicle using wind energy and having solar energy collectors disposed on the surface of the wing sail and wherein the antenna arrays are integrated into the wing sail or mounted on a stern portion of the enclosed hull.

22. (Previously presented) The unmanned ocean vehicle of claim 1 wherein the communications system is configured for transmitting and receiving command signals and data from one or more cooperating ocean vehicles.